

The male hypopygium of *Chagasia farjardi* Lutz and the systematic position of this species

by

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THEOBALDS numerous Anopheline genera based on scale characters have not been generally accepted by later authors. Several attempts have been made for a better division of this important group of Culicidae.

DYAR ¹⁾ recognises several subgenera in the genus *Anopheles*, using the old Theobaldian scale characters in a more conscientious way. One species is set apart in the genus *Coelodiazesis* on the outer structure of the imago and some larval characters. CHRISTOPHERS ²⁾ considers the male hypopygium as most useful for a primary division and recognises three divisions, one Old World group, one New World group and one group of World wide occurrence, indicated by the names *Deuteroanopheles*, *New World group* and *Protoanopheles* respectively. *Deuteroanopheles* has more than two basal spines at the base of the side piece, *Protoanopheles* only two and the *New World group* only one. The value of hypopygial characters for the classification of mosquitoes is generally recognized and the fact that DYAR did not use these characters for dividing his genus *Anopheles* is probably primarily due to the absence of a sufficient number of Old World species in the Washington collections.

I do not know of any description of the male hypopygium of *Chagasia farjardi* LUTZ. There are so many fundamental

¹⁾ HARRISON G. DYAR, Notes on American *Anopheles*, Ins. Ins. Mens. VI, 141, 1918.

²⁾ S. R. CHRISTOPHERS, The male genitalia of *Anopheles*, Ind. Journ. Med. Res. III, 371, 1915.

differences with the corresponding parts in other members of the Anopheline subfamily, that without any doubt *Chagasia* represents a distinct line of development, different from all the other forms. It has a position of its own of probably generic value.

Description.

Aedoeagus short, conically-tubular, without leaflets at its terminal opening. At the base there are a few pieces of chitin but distinct parameres and basal plates are not visible in the preparation. The tenth segment forms an anal lobe



Male hypopygium of *Chagasia farjardi* LUTZ.

- a.* Side piece; *b.* Clasper; *c.* Subapical spiny lobe; *d.* Aedoeagus;
e. Tenth segment; *f.* Basal organ with the position of the
 claspette like structure; *g.* Hairy lobe of ninth tergite.

with lateral irregular chitinizations. The side pieces are short, less than twice as long as wide. The claspers are long, much longer than the side pieces. They have a terminal claw. About halfway up the side piece there is a broad, distinct lobe, bearing a number of short stout spines. The lobe is inserted on the ventral median aspect of the side piece. Dorsally and medianly the side piece bears a less distinct rounded process arising from the base of the side piece and covered with a large number of minute hairs. It corresponds in position with the claspette like structure (CHRISTOPHERS harpagones) in other *Anopheles*, but it is hardly specialized. Specialized spines at the base of the side

piece are not visible. Ninth tergite with two rounded, low lobes, each lobe with a large number of thick, long hairs, placed all over the lobe and not in a row.

In this description I used EDWARDS nomenclature¹⁾, the following terms being synonyms.

| EDWARDS. | CHRISTOPHERS. |
|---------------------------|---|
| Lobes of ninth tergite. | Ventral submedian lobes of ninth segment. |
| Side piece. | Basal portion of clasper. |
| Clasper. | Terminal portion of clasper. |
| Claspette like structure. | Harpagones. |
| Basal spines. | Claspette spines. |
| Aedoeagus. | Theca. |

The main differences with other Anopheline species are:

1. The presence of distinct hairy lobes on the ninth tergite.
2. The total absence of basal spines and of a specialized claspette like structure.
3. The presence of a definite subapical spiny lobe on the side piece.

These characters give *Chagasia* an intermediate position between *Anopheles* in general and *Aedeomyia*, which has the same subapical spiny lobe. The aedoeagus of *Chagasia* is tubular however like in the other *Anopheles*. There are other characters in the adult *Chagasia* that give it a separate position. The scutellum is weakly trilobed instead of rounded; the scales on the antennae are unique; the resting position resembles more the *Aedeomyia* or *Mansonia* position.

The structure of the hypopygium isolates *Chagasia* entirely in the Anopheline group. It does not fall in any of CHRISTOPHERS' subdivisions because of the total absence of basal spine. Although CHRISTOPHERS New World group is not as homogeneous as he supposed it to be, there is no resemblance of any of the New World forms so far described with the peculiar *Chagasia* structures.

¹⁾ F. W. EDWARDS, The nomenclature of the Parts of the Male Hypopygium of Diptera Nematocera, with special Reference to Mosquitoes. *Annals Trop. Med. and Parasit.* XIV, 23, 1920.